

What is claimed is:

1. An electrical device suitable for use in a digital telecommunications circuit, which device has a capacitance of at most 150 pF and comprises

- (1) a laminar PTC element which (a) comprises a conductive polymer composition which exhibits PTC behavior, (b) has first and second major surfaces, (c) has a thickness  $t$  mm which is at most 2.5 mm, and (d) has a perimeter  $p$  mm which is at most 50 mm;
- (2) a first metal foil electrode which is attached to the first surface of the PTC element;
- (3) a second metal foil electrode which is attached to the second surface of the PTC element; and
- (4) a first insulating layer which comprises an electrically insulating material which conforms to at least part of the perimeter of the PTC element;

the device

- (a) having an initial resistance at 20°C of at most 6 ohms,
  - (b) meeting the requirements of UL1950 power contact test M-1, and
  - (c) after being subjected to a 250VAC/3A test for a period of 15 minutes followed by a period of at least 1 hour during which no power is applied to the device having a resistance which differs by at most 1.5 ohms from that of a substantially similar device subjected to the same electrical test.
2. An electrical device according to claim 1 wherein the first insulating layer of the device is substantially free of contact with the first and second electrodes.
3. An electrical device according to claim 1 wherein the device has an initial resistance at 20°C which is at most 4 ohms.

4. An electrical device according to claim 1 wherein the resistance of the device differs from that of a substantially similar device which has been subjected to the 250VAC/3A test by at most 1.0 ohm.
5. An electrical device according to claim 1 wherein the resistance of the device changes by at most 2.0 ohms after being subjected to an electrical pulse having a waveform characterized by (a) a maximum risetime of 10 microseconds, (b) a minimum decay time of 1 millisecond, (c) a minimum peak voltage of 1000V, and (d) a minimum peak current of 100A followed by a resting period of at least 1 hour during which no power is applied to the device.
6. An electrical device according to claim 1, further comprising a first electrical lead attached to the first electrode and a second electrical lead attached to the second electrode.
7. An electrical device as in claim 1 further comprising the device having a maximum height of 10 mm when mounted on a substrate.
8. An electrical device according to claim 1 wherein the first insulating layer of the device comprises a filler which is an arc-suppressing material, a stress-grading material, a flame-retarding material, or a track-resistant material.
9. An electrical device according to claim 1 wherein the first insulating layer of the device is in the form of a ring.
10. An electrical device according to claim 9 wherein the ring, prior to installation onto the device, is a self-supporting component.
11. An electrical device according to claim 10 wherein the ring is a heat-recoverable article.
12. An electrical device according to claim 11 wherein the heat-recoverable article comprises (a) a carrier member and (b) an adhesive member which is in contact with the carrier member and the device perimeter.
13. An electrical device according to claim 1 in which each device further comprises a solder layer which (a) is in contact with at least part of an exposed surface of the first metal electrode, and (b) is substantially free of contact with the first insulating layer

14. An electrical device according to claim 1 which further comprises a second insulating layer which surrounds the device.
15. An electrical device according to claim 14 wherein the second insulating layer comprises a self-supporting box.
16. An electrical assembly comprising
- (A) first and second electrical devices, each of which devices comprises
- (1) a laminar PTC element which (a) comprises a conductive polymer composition which exhibits PTC behavior, (b) has first and second major surfaces, (c) has a thickness  $t$  mm which is at most 2.5 mm, and (d) has a perimeter  $p$  mm which is at most 50 mm;
  - (2) a first metal foil electrode which is attached to the first surface of the PTC element;
  - (3) a second metal foil electrode which is attached to the second surface of the PTC element; and
  - (4) a first insulating layer which comprises an electrically insulating material which conforms to at least part of the perimeter of the PTC element;
- each of which devices
- (a) having an initial resistance at 20°C of at most 6 ohms;
  - (b) having a capacitance of at most 150pF; and
  - (c) meeting the requirements of UL1950 power contact test M-1, and
- (B) an additional insulating layer which surrounds the first and second devices,
- the first device, after being subjected to a 250VAC/3A test for a period of 15 minutes followed by a period of at least 1 hour during which no power is applied to the device, having

a resistance which differs by at most 1.5 ohms from that the second device subjected to the same electrical test.

17. An assembly according to claim 16 wherein the additional insulating layer comprises a self-supporting box.

18. An electrical assembly comprising two laminar PTC devices electrically connected in parallel, each of which devices

- (1) comprises a laminar PTC element which (a) is composed of a conductive polymer composition which exhibits PTC behavior, (b) has first and second major surfaces, (c) has a thickness  $t$  mm, and (d) has a perimeter  $p$  mm,
- (2) has a first metal electrode attached to the first surface,
- (3) has a second metal electrode attached to the second surface, and
- (4) has a first insulating layer which comprises an electrically insulating material which conforms to at least part of the perimeter of the PTC element;

the assembly

- (A) having a capacitance which is at most 300pF;
- (B) having an initial resistance at 20°C which is at most 6 ohms; and
- (C) meeting the requirements of UL1950 power contact test M-1.

19. An assembly according to claim 18, which further comprises an additional insulating layer which surrounds the device.

20. An electrical device according to claim 19, wherein the additional insulating layer comprises a self-supporting box.

21. An electrical telecommunications circuit for digital signals, said circuit having a tip and a ring section, which circuit comprises

- (1) a source of electrical power;
- (2) a load; and
- (3) an electrical device according to claim 1 electrically in series with said source and load.

22. A circuit according to claim 21 wherein the device is in the circuit in the tip or the ring section.